

ABSTRACT

In an example method for fabricating a transistor in a semiconductor device, a buffer insulation layer and a first insulation layer are deposited and etched, and poly electrodes for an LDD are formed on sidewalls of thereof. After a local channel region is formed into a semiconductor substrate by an impurity ion implantation process, a trench-shaped gate insulation layer is deposited on the gate region. A gate electrode material is deposited into the trench-shaped region and planarized by a blanket etchback or a CMP process. After a silicide is formed by a salicidation process, a second insulation layer and a third insulation layer are formed thereon, sequentially. Contact holes for a gate electrode, a source electrode and a drain electrode may be etched and a conductive material may be filled therein, thereby forming a gate plug, a source contact plug and a drain plug.